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DOCUMENT-IDENTIFIER: US 5655007 A
TITLE: Telephone based credit card protection

Abstract Text (1):
A system and method for enhancing the security of use of a transaction device such
as a transaction card through a telephone system wherein subscribers to the service
may require voice authentication as a prerequisite to a conventional transaction
card authentication step. The service is automatically invoked based on a code
inserted in the card, or the identity of the calling subscriber, or the identity of
the called authentication bureau. The service may also be invoked in situations
which do not involve the use of a transaction device but which require the input of
an identifying password or number when seeking access to limited access data or
services.

Brief Summary Text (12):
Above identified parent application Ser. No. 08/322,133 (680-108) described an
improved system and method for assuring added security in the use of credit or
debit cards using a unique methodology adapted to be implemented by largely
existing facilities in a public switched telephone network having an advanced
intelligent signaling network and one or more intelligent peripheral platforms.
According to one version of the system there described, the credit card holder
subscribes to a security service in return for an incentive such as may be provided
by the credit card issuing entity, such as offering a reduction of interest rate or
a percentage rebate on purchases for use of the new system. The credit card holder
was permitted to subscribe to the new service through his residence telephone to
set up a Personal Identification Number (PIN) and/or a voice print or template to
control his credit card use. Having subscribed to the service and established such
a PIN and voice template the card holder could utilize the credit card security
procedure. Prior to use of the card the card holder accessed the security system by
telephone, preferably but not necessarily his residence telephone, and effected
verification by the preestablished PIN or voice template or both. Following such
verification the card holder established or set at least one- and preferably two or
more of the following parameters:

Brief Summary Text (16):
4. A temporary PIN which the subscriber desires to have applicable under the
restrictions set under 1, 2 and 3 above.

Brief Summary Text (17):
5. A voice verification using the preestablished template.

Brief Summary Text (18):
Following the establishment or setting of these parameters the point-of-sale
authorization or usability of the credit card is then subject to those restrictions
and will be activated only if all such restrictions are satisfied. The system and
method can be accomplished using elements which are for the most part found in
modern public switched telephone networks or at least in those which possess an
Advanced Intelligent Network (AIN). This includes such features as common channel

signaling, such as SS7 or the like, and one or more intelligent peripheral platforms. The location of attempted use of the credit card, usually a point-of-sale, was identified by the incoming call from the merchant presenting signals in the telephone network, such as ICLID, DNIC, or ANI. That system also provides for further verification by permitting a sales clerk at the point-of-sale terminal to mandatorily or optionally request the temporary PIN and confirmation of identify by voice authentication using the prestored voice template. A telephone station is normally available at the point-of-sale verification device.

Brief Summary Text (23):
The added security methodology preferably requires voice verification and may also require one of more of the added limitations on card usage above described and detailed further hereinafter.

Detailed Description Text (15):
In the normal plain old telephone service (POTS) type call processing, the central office switching system responds to an off-hook at one of the telephone stations and receives dialed digits from the calling station. The central office switching system analyzes the received digits to determine if the call is local or not. If the called telephone station is local and the call can be completed through the one central office, the central office switching system connects the calling station to the called station. If, however, the called station is not local, the call must be completed through one or more distant central offices, and further processing is necessary. If at this point the call were connected serially through the trunks and appropriate central offices between the caller and the called party using in channel signaling, the trunks would be engaged before a determination is made that the called line is available or busy. Particularly if the called line is busy, this would unnecessarily tie up limited voice trunk circuit capacity. The CCIS system through the STP's was developed to alleviate this problem.

Detailed Description Text (19):
For ordinary voice grade telephone service calls, there would be no event to trigger AIN processing; and the local and toll office switches would function normally and process such calls as discussed above, without referring to the SCP database for instructions. In a first mode of operation, an SSP type office (CO or tandem) which detects a trigger will suspend call processing, compile a TCAP formatted call data message and forward that message via a common channel interoffice signaling (CCIS) link and STP(s) to the ISCP 40 which includes the SCP database 43. The ISCP accesses its stored data tables to translate the received message data into a call control message and returns the call control message to the office of the network via CCIS link and STP(s). The SSP then uses the call control message to complete the particular call through the network. For AIN calls requiring a processing feature provided by the peripheral platform, the call control message would instruct the SSP to route the call to the associated peripheral platform.

Detailed Description Text (20):
The IP 37 performs DTMF digit collection and voice announcement functions on telephone calls for a wide variety of telephone services available through the network. According to the invention and as discussed in more detail later, the IP provides voice recognition capabilities for such interactions. Advanced implementations of the IP will also include various data communications means, e.g., for FAX mail services, screen-phone services, etc.

Detailed Description Text (23):
In the preferred embodiment, the connection from the IP to the SSP would utilize a primary rate ISDN type trunk line for carrying both voice channels and signaling information. However, a number of alternate implementations of this connection can be used. For example, the connection may take the form of a T1 circuit carrying a number of Multiplexed Centrex line channels. If additional data signaling is

necessary from the switch to the IP, a Simplified Message Desk Interface (SMDI) link can be provided. SMDI is a standard form of maintenance port, available on many types of telephone switching systems, through which calling party number information can be supplied. For older switching systems not capable of call transfer through ISDN signaling or signaling on T1 Centrex lines, an additional switch could be added between the IP and the SSP.

Detailed Description Text (25):
FIG. 3 illustrates a first, preferred embodiment of an IP used in the network of FIG. 1. In this implementation, the IP may consist of two or more general purpose computers 1101A, 1101B, such as IBM RS-6000's. Each general purpose computer will include a digital voice processing card for sending and receiving speech and other audio frequency signals, such as an IBM D-talk 600. Each voice processing card will connect to a voice server card 1103A or 1103B which provides the actual interface to T1 or primary rate interface ISDN trunks to the SSP type switching office. The plurality of computers may have associated dedicated disk storage 1105A, 1105B, and the IP will included a shared disk memory 107.

Detailed Description Text (27):
The IP may also include another general purpose computer 1115 configured as a terminal subsystem, for use as a maintenance and operations center (MOC) and providing operations personnel access to the IP. The number of processors provided in the IP and the number of voice servers will depend on project service demands. One additional processor and associated voice server will be provided as a backup (not shown).

Detailed Description Text (28):
Each general purpose computer 1101A, 1101B will run a node manager, an IP/ISCP Interface program, appropriate voice processing and voice recognition/authentication software and a variety of application software modules to offer the proposed services of the IP. The central administrator or "Node Manager" program module, running on each computer, will monitor and control the various IP resources and operations.

Detailed Description Text (29):
The digital voice processing card and associated software will provide speech synthesis, speech recognition capabilities and DTMF tone signal reception, for use in a number of different applications. The speech synthesis and DTMF tone signal reception, for example, may replace the announcement and digit collection functions of the SSP switches in various existing AIN services. The general purpose computers and associated circuits may also run a variety of other types of service program modules, for example, a voice mail server module and/or a fax mail server module.

Detailed Description Text (30):
FIG. 4 illustrates an alternate embodiment of the IP used in the network of FIG. 3. The alternate architecture utilizes separate modules for different types of services or functions, for example, one or two Direct Talk type voice server modules 1203A, 1203B for interfacing the trunk to the SSP, a separate module 1205 for speech recognition, a server module 1209 for voice mail, and another server 1207 for fax mail services, a level 1 gateway module 1237 for controlling broadband services, a speech authentication module 1237A, etc. The various modules communicate with one another via an internal data communication system 1210, which again may be an Ethernet type local area network.

Detailed Description Text (31):
The Direct Talk modules 1203A, 1203B provide voice message transmission and dialed digit collection capabilities, as in the earlier embodiment. The modules 1203A, 1203B also provide line interfaces for communications to and from those servers which do not incorporate line interfaces. For example, for facsimile mail, the Direct Talk module connected to a call would demodulate incoming data and convert

the data to a digital format compatible with the internal data communication
network 1210. The data would then be transferred over network 1210 to the fax
server 1207. For outgoing facsimile transmission, the server 1207 would transfer
the data to one of the Direct Talk modules over the network 1210. The Direct Talk
module would reformat and/or modulate the data as appropriate for transmission over
the ISDN link to the SSP. The Direct Talk modules provide a similar interface
function for the other servers, such as the voice mail server 1209.

Detailed Description Text (33):
In each of the proposed architectures, the SSP switch would route voice grade
telephone calls to the different elements of the IP in response to instructions
from the ISCP. In the initial implementation using general purpose computers (FIG.
3), each of which offers all service functionalities, the decision to route to a
particular one of the computers would be a resource availability/allocation
decision. If necessary, data can be exchanged between the computers via the
internal data communications network, e.g., if a message for a particular
subscriber's service is stored in the disk memory associated with one computer but
the other computer is actually processing the call. In the second implementation
(FIG. 4), however, the ISCP would instruct the SSP to route the call to the
particular line to the specific module capable of providing a calling customer's
individual service. For example, if the subscriber has some form of speech
recognition service, the call would be routed to the speech recognition module
1205. For voice authentication, via a preestablished voice template, the call would
be routed to module 1237A. If the subscriber has a voice mail service, the ISCP
would instruct the SSP to route the call to one of the lines going to one of the
voice server modules 1203A, 1203B, The module 1203A, or 1203B would receive
outgoing voice messages from the voice mail server 1209 for transmission to the
caller. The module 1203A or 1203B would decode DTMF signals and supply appropriate
data to the voice mail server for control purposes. The module 1203A or 1203B would
also format incoming voice messages for transmission over internal network 1210 and
storage by server 1209. This query message is in the above described TCAP format
for an initial query from an SSP.

Detailed Description Text (36):
If the service identified in response to the information in the original TCAP query
message requires one or more call processing functions of the IP, the ISCP
transmits a "SEND TO RESOURCES" type TCAP message or a similar message from the
+1129 protocol back to the SSP via the STP's of the SS7 signaling network. This
message would include sufficient information to route the call to one of the lines
going to a voice server interface 1103A or 1103B within the IP. If the IP connects
directly to the SSP, the SSP simply activates appropriate internal switching
elements to establish the call connection channel between the caller and the IP. If
the IP does not connect to the particular SSP, the instruction will provide
sufficient information to route the call through another switching system to the
IP. As previously stated and as shown in FIGS. 1 and 5, the ISP is also directly
connected by a second communication data link to the IP.

Detailed Description Text (37):
When the IP receives the call, the SSP may provide the IP with a substantial amount
of information about the particular call, including the dialed digits and the
calling party's telephone number. In response to the call, the IP may formulate a
query message containing this information. The IP may transmit this query message
to the ISCP via the second signaling communication network. The ISCP will utilize
the information from the IP query message to access the stored data tables in the
SCP database 43, formulate an appropriate instruction, and transmit that
instruction back to the IP via the second signaling communication network. For
example, in a call blocking type service or in the service of the present invention
requiring a caller to input a PIN number in order to reach a called subscriber or
effect credit card authorization, the instruction might identify a prompting
message and specify a number of digits to be collected. The IP would receive the

message and perform the call processing function specified in the instruction. In the present voice authentication embodiment of the invention, the instruction would direct the IP to select the template corresponding to the calling user, have the user speak the word represented by the template, make the comparison, and signal a match or no-match. In the case of a match, the IP would be instructed to complete the transaction and store the pertinent record data.

Detailed Description Text (39):
In a call blocking example, the IP function would involve retrieval of the identified message from memory and provision of that message to the digital voice card. The digital voice card would synthesize appropriate speech signals for transmission through the voice server card 1103A or 1103B and the voice network to the caller. This voice message might say "Jane Smith does not wish to be disturbed at this time. If you wish to leave a message please stay on the line." Callers familiar with Ms. Smith would know that this blocking feature could be overridden by input of a personal identification number (PIN) which Ms. Smith had given them. The IP would wait a specified time period and would collect any dialed digits received during from the caller during that period. The IP would then formulate a query or other format message including any dialed digits received or information indicating a lack of receipt of digits and transmit that data message back up to the ISCP through the second signaling communication system.

Detailed Description Text (40):
The ISCP 40 will utilize the information from the latest IP query message to again access the stored data tables in the SCP database 43, formulate an appropriate instruction for further processing and transmit that instruction back to the IP via the second signaling communication network. Continuing with the call blocking example, the ISCP would identify whether or not a correct PIN was dialed in by the caller. If not, the next message to the IP would instruct the IP to execute a voice mail box script for the called subscriber. The IP would play an outgoing message and record an incoming message to the caller. After completion of the mailbox script, IP processing would be complete and the IP would disconnect the call and processing would end.

Detailed Description Text (41):
Not all processing of AIN telephone calls by the IP ends in a simple disconnect. Other alternative call dispositions are possible. The most common, such as used in the present invention, is that after all other processing the IP will instruct the SSP to transfer the call to a specified destination, which may be the credit card authentication facility of a credit card issuer or financial institution. In such a case, the message transmitted from the ISCP to the IP would specify an actual destination number. In the call blocking example, if the ISCP determined that the caller had dialed in a valid PIN, the ISCP would transmit the telephone number for Jane Smith's current location. The IP will request call transfer by the SSP and supply the destination number to the SSP. For example, if the link to the SSP uses ISDN, the IP would transmit a transfer request and the destination digits over the D-channel. As an alternate example, if the link is T1 carrying multiplexed Centrex lines, the IP would simulate a hook-flash on the line or channel carrying the call and then outpulse the digits of the destination number. In response to the transfer request, the SSP routes the call to the destination and tears down the prior call connection between the caller and the IP.

Detailed Description Text (45):
The subscriber may access the service for programming purposes by dialing a number which may be a virtual number in the telephone system, such as an 800 number. This accesses a voice response menu system using hardware which may be provided at the switch, at the ISCP, or in an intelligent peripheral or other network device. For security purposes a user ID and password system or a PIN may be used.

Detailed Description Text (46):

The subscriber may access the system through his own residence telephone, or by remote access from another telephone. Preferably, the telephone is a DTMF or Touchtone Telephone.TM.. If the subscriber uses his own telephone the subscriber's identify is determinable from the ANI, ICLID, or DNIC signal. If the subscriber uses a remote phone other than his residence telephone the identity of the caller will be ascertained in a dialogue with a voice prompt system and the directory number of the credit security service subscriber which is keyed in response to a request in the dialogue. Alternatively, voice recognition may be used in place of DTMF signaling.

Detailed Description Text (47):
Once the user has logged into the system by entering the correct number and password, ID or PIN, the subscriber may select from a menu of parameters offering options for programming the service. From the menu, the subscriber may elect to activate the identified card or cards for a selected period of time. This may be in the form of a time duration commencing immediately, such as three hours from the present time, or a time period with designated commencement and termination times, such as from 9 a.m. of a stated date to 1 p.m. of the same date. Following this input the voice messaging unit will play back to the customer the requested time and any errors of entry may be corrected in known fashion as will be understood.

Detailed Description Text (48):
Assuming that an activation time is established, the customer may next be asked if he wants to specify an area for authorized usage, such as a zip code area, an access area, city or county boundary area, etc. Again, the voice messaging unit will play back the entry for confirmation by the customer.

Detailed Description Text (49):
The customer next may be asked if he wants to place a dollar limit on the authorization and, if so, in what amount. This will be keyed or spoken in by the customer and confirmed by the voice messaging.

Detailed Description Text (50):
The foregoing will constitute the most frequently used parameters. However, additional safeguards will be available. For example, the voice message can then inquire as to whether the customer desires to mandatorily or optionally require the card user to supply upon request a temporary ID or PIN number. If so, this will be entered by the subscriber in response to a voice message and confirmed. As a further mandatory or optional safeguard, the subscriber may be offered the option of establishing a temporary voice recognition authentication password to be spoken by the card user during the card activation session being programmed. If this is selected, the user will be requested to speak such password or number and the affirmative response of the subscriber to the inquiry as to whether such a password should be established will trigger the creation of a voice authentication template at the intelligent peripheral IP in a known manner, such as, for example, as described in Applicant's copending patent application Ser. No. 08/322,133, filed Oct. 13, 1994, attorney Docket No. 680-107, now U.S. Pat. No. 5,513,250.

Detailed Description Text (54):
The traditional approach to credit card authorization transactions is to provide a service establishment, such as a store, with a special authorization terminal equipped with an internal asynchronous modem which is connected to a local telephone line. When a credit card is moved through a slot on the terminal past a magnetic stripe reader, information is collected from the magnetic stripe on the card. The terminal then goes off hook on the telephone line and dials a number previously programmed into the terminal. Equipment, including a modem, at the called site answers the call. After the call is answered, data communication is established. The data transmission for dial-up credit card authorizations is most often governed by the Visa protocol. Information from the magnetic stripe, information previously programmed into the terminal, and information keyed into the

terminal by the merchant about the specific sale are transmitted up-line to a host computer where the request is processed and an authorization code or other information (e.g., a request to call for voice authorization) is transmitted back to the point-of-sale terminal. Upon receiving the response, the terminal goes on-hook and the call is terminated. Many terminals can be programmed to dial different numbers based upon the information contained in the magnetic stripe on the card being processed.

Detailed Description Text (58):
The IP is connected to the SSP central office 210 via a voice connection 247 and a data connection 249. It will be understood that through the use of ISDN or a T1 link this may constitute a single link as previously described. The IP is also connected to the ISCP via a data link 251 which is distinct from the preexisting SS7 network and which may or may not use SS7 protocol, also as previously described. Alternatively, the ISCP may communicate with the IP through the existing SS7 network and the link between the SSP central office 210 and IP 245.

Detailed Description Text (60):
By way of example, a subscriber to the new service may establish a service profile by calling the new service facility associated with the central office 210 which may be the SCP 43 shown in FIG. 1. The caller requests a subscription to the transaction security service. Thereupon there ensues a dialogue between the caller and a live operator or a Voice Processing Unit (VPU) which may be located at the IP as described in connection with FIGS. 3 and 4. In that dialogue the identity of the directory number and subscriber is automatically available to the service facility via ANI, ICLID, or DNIC. The dialogue entails the calling party identifying one or more transaction devices or cards, by name, number, and expiration date. This information is stored in a database at the IP and in the database 43 at the ISCP via suitable signaling between the IP and ISCP. The caller is then requested to establish a series of parameters which may include a PIN, and voice print or template.

Detailed Description Text (61):
When the transaction device or credit card holder intends to use the transaction device or card, he may access the security system and be verified by the PIN or voice template thus established. Thereupon, the card holder may set a series of parameters which he desires as a necessary prerequisite to activation of the card or transaction device. These parameters may include, a set period of time, such as, for the next three hours, or for example, from 9 a.m. to 1 p.m. on a specified date; a limit on the credit card total purchasing power during that time, such as, for example, $250.00; a geographic location for the use of the credit card, such as, a city, country, zip code area, or NXX area; and, a temporary PIN that would be applicable under the foregoing restrictions in order to complete activation. Voice authentication may also be established as an additional parameter as previously described.

Detailed Description Text (62):
Following initial establishment of this service profile, the card holder may thereafter arrange for activation of the card for use by calling a directory number provided to the caller in the establishment of the subscription and service profile, verifying the identity of the caller by the pre-established PIN and/or voice authentication template. After successful completion of such verification the caller may activate the identified card by establishing the desired set period of time, limit on purchasing power, location of use, and temporary PIN for use subject to the satisfactory establishment of the foregoing parameters.

Detailed Description Text (65):
Following an affirmative response to the monetary comparison, the processor at the IP next compares the geographic location of the calling station, i.e. the transaction device 242, as determined by ANI, ICLID, or DNIC, with the area

designated by the subscriber. Following an affirmative response the VPU at the IP requests and obtains from the person attempting to use the credit device a vocalization of the temporary ID or PIN established by the user for the time frame. Following an affirmative comparison the VPU at the IP may request the user to repeat the word used to create the voice identification template stored at the IP. It will be understood that not all of the steps need be required in every instance and that the voice steps in particular may be permitted to be at the option of the merchant seeking authentication. The merchant may request such additional authentication steps either through a voice line and telephone station at the transaction authentication device or card reader, or the depression of a predetermined DTMF key or keys, by way of example.

Detailed Description Text (71):
The operation of this embodiment of the invention is now described in relation to the simplified diagram shown in FIG. 6. At 310 there is indicated a caller station which may be a card reader as shown at 242 in FIG. 5, or may be a telephone in the case of a person seeking access to PBX DISA. The caller at station 310 is connected to an SSP at 312 via a voice link 314. If the caller constitutes a transaction device such as a card reader, the security measures may be initiated either in response to a code detected from the card by the reader or, in the alternative, by the identity of the calling station as may be established from the ANI, ICLID, directory number, NNX or the like. As a further alternative the triggering may be based on the identity of the called number or by the combined identity of the calling and called numbers.

Detailed Description Text (73):
Following the appropriate recognition of the call by the ISCP the ISCP initiates a response data message to a verifier 324 to conduct a voice verification. At the same time the ISCP directs the SSP to suspend the originally dialed call to the destination 326 and directs connection of the caller at 310 to the verifier 324. The verifier 324 may be a voice recognition module or platform in an IP, such as the IP's shown and described in connection with FIGS. 3 and 4. The voice recognition platform selects the voice template created by the person to whom the credit card issued or by the person qualified or accredited to use PBX DISA.

Detailed Description Text (74):
The voice recognition template for each user must be established prior to usage of the service and this may be accomplished in a manner appropriate to the particular subscriber. Thus in the instance where a credit or transaction card is issued to the subscriber the establishment of a voice recognition template may be required as a condition of issuance of the card. Alternatively the template may be required only if the recipient of the card desires to qualify the card for use at specified establishments. That is, if the credit card issuer does not require use of the voice verification as a condition of use of the card the issuer may nevertheless inform the recipient that the card may not be usable for certain designated transactions. With respect to such transactions the card will be recognized and accepted only if the recipient establishes a voice recognition template and satisfies the voice recognition requirements in using the card for those transactions. Creation of the template may be carried out as above described in connection with the earlier described embodiments of the invention requiring voice recognition.

Detailed Description Text (75):
In the situations where a credit card or transaction device is not involved, such as PBX DISA, the person seeking issuance of a password or number to access the involved service may be required to establish a voice recognition template before the service or access can be actuated.

Detailed Description Text (76):
Following establishment of the voice connection between the verifier 324 and caller

310 the steps of <u>voice</u> verification are performed as previously described. If the
verification requirement is satisfied as determined in the verifier or IP, either
the IP dispatches a message to the ISCP to that effect or the IP dispatches a
message direct to the SSP 312 directing establishment of the connection of the
caller 310 to the destination 326. In the case where the destination 326
constitutes a credit card validation bureau, such as at 258 in FIG. 5, the normal
credit card validation then proceeds following the precedent added security of the
<u>voice</u> verification through the central verification service. Where the caller seeks
a service such as PBX DISA which does not involve a credit or transaction card, the
destination may constitute the PBX. The conventional verification of PBX DISA
access then will be performed following the added security steps of <u>voice</u>
authentication.

Detailed Description Text (77):
It will be obvious that the <u>voice</u> verification security step requires some facility
for the user to speak the predetermined word or words for communication to the
verification module. In most instances of credit cards at point of sale
transactions, a telephone station already exists and is frequently used for
vocalized communication between the validation bureau and the point of sale. Where
such a telephone station exists it may serve as the terminal for input of the <u>voice</u>
to be validated as authentic. In other instances, such as ATM machines and gas
pumps, a telephone station is not now normally available. According to the
invention such transaction points are provided with telephone or telephone type
terminals connected to <u>voice</u> circuits to a central office switch. Alternative to
handset type telephones a speaker and microphone or a combination
speaker/microphone are provided.

Detailed Description Text (78):
It will be apparent from the foregoing that the centralized verification center
provided by the present invention provides numerous advantages. The centralized
center makes it possible for users to establish <u>voice</u> authentication templates a
single time for use in and with varied transactional activities. A wide variety of
businesses are provided with a fully operational virtually instantly available
security system. Duplication of such systems may be eliminated or at least
minimized. There is no necessity for each business desiring the added security
measure to investigate competing equipment or systems or to make a substantial
capital investment.

CLAIMS:

1. In a telephone system comprising:

telephone stations;

spaced central office switching systems interconnected via trunk circuits for
selectively providing switched telephone call communications between at least two
of said telephone stations;

a service control point, separate from said central office switching systems,
comprising a database storing call processing data associated with a plurality of
said telephone stations for control of call processing through one or more of said
central office switching systems;

a peripheral platform connected to at least one of said central office switching
systems via a telephone call connection channel, the peripheral platform comprising
means for providing at least one auxiliary telephone call processing capability via
the telephone call connection channel and including a database of personal speech
identification templates;

a signaling communication system separate from said trunk circuits for two-way

communications of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a transaction authentication platform;

a method comprising the steps of:

(a) initiating a call by dialing a virtual number at one of said telephone stations which results in sending control signals from one of said switching systems to said service control point, said control signals representing an inquiry regarding the call and including data identifying a transaction device and including data identifying action to be taken with respect to said transaction device;

(b) said service control point identifying a service corresponding to said virtual number and accessing in its database data identifying transaction devices of subscribers to said service;

(c) on identifying one of said transaction devices in said data identifying transaction devices in said database, sending control signals to said peripheral platform for providing said service, said control signals identifying said one of said transaction devices;

(d) said peripheral platform using the identity of said one of said transaction devices to access a personal speech identification template corresponding to the identity of said one of said transaction devices;

(e) connecting said dialing telephone station to said peripheral platform for <u>voice</u> communication;

(f) inputting to said connected telephone station a <u>voice</u> utterance of a word corresponding to a word used to create said template;

(g) receiving at said peripheral platform a signal resulting from the inputting of said utterance;

(h) comparing said received signal with said template to establish a match;

(i) if a match is not established for said utterance terminating the connection to said connected station;

(j) if a match is established sending to said one of said switching systems control signals directing further connection of said connected telephone station to said transaction authentication platform.

13. In a telephone system comprising:

telephone stations;

spaced central office switching systems interconnected via trunk circuits for selectively providing switched telephone call communications between at least two of said telephone stations;

a service control point, separate from said central office switching systems, comprising a database storing call processing data associated with at least certain of said telephone stations for control of call processing through one or more of said central office switching systems;

a peripheral platform connected to at least one of said central office switching systems via a telephone call connection channel, said peripheral platform

comprising means for providing at least one auxiliary telephone call processing capability via the telephone call connection channel and including a database of personal speech identification templates;

a signaling communication system separate from the trunk circuits for two-way communication of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a transaction authentication platform;

a method comprising the steps of:

(a) initiating a call by dialing a virtual number at one of said telephone stations which results in sending control signals from one of said switching systems to said service control point representing an inquiry regarding the call and including data identifying a transaction device and including data identifying action to be taken with respect to said transaction device, said last named data being associated with at least one of the calling or called numbers;

(b) said service control point determining from its database a service corresponding to said at least one of said numbers;

(c) on identifying said action sending control signals to said peripheral platform for providing said determined service, said control signals identifying said transaction device;

(d) said peripheral platform using the identity of the transaction device determined by said control signals in step (c) to access a personal speech identification template corresponding to the identity of said transaction device;

(e) connecting said dialing telephone station to said peripheral platform for <u>voice</u> communication;

(f) inputting to said connected station a <u>voice</u> utterance of a word corresponding to a word used to create said template;

(g) receiving at said peripheral platform a signal resulting from the inputting of said utterance;

(h) comparing said received signal with said template to establish a match;

(i) if a match is not established for said utterance terminating the connection to said connected station;

(j) if a match is established sending to the switching system to which said telephone station is connected control signals directing further connection of said connected telephone station to said transaction authentication platform.

24. In a telephone system comprising:

telephone stations;

spaced central office switching systems interconnected via trunk circuits for selectively providing switched telephone call communications between at least two of said telephone stations and including connections between said telephone stations and end central offices associated therewith;

a service control point, separate from said central office switching systems, comprising a database storing call processing data associated with a plurality of

said telephone stations for control of call processing through one or more of said central office switching systems;

a peripheral platform connected to at least one of said central office switching systems via a telephone call connection channel, said peripheral platform comprising means for providing at least one auxiliary telephone call processing capability via said telephone call connection channel and including a database of personal speech identification templates;

a signaling communication system separate from said trunk circuits for two-way communication of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a transaction authentication platform;

a transaction device reader at the site of at least one of said telephone stations associated with one of said switching systems;

a method comprising the steps of:

(a) initiating a call by reading a transaction device at the site of said telephone station at which said transaction device is located to generate a signal causing dialing of a virtual number which results in sending control signals from the switching system with which the telephone station at which said transaction device is located is associated to said service control point representing an inquiry regarding the call and including data identifying said transaction device and including data identifying action to be taken with respect to said transaction device, said last named data being associated with at least one of the calling or called numbers;

(b) said service control point determining from its database a service corresponding to said at least one of said numbers;

(c) on identifying said action sending control signals to said peripheral platform for providing said determined service, said control signals identifying said transaction device;

(d) said peripheral platform responding to said control signals by accessing a personal speech identification template which is identified by said control signals;

(e) connecting said dialing telephone station to said peripheral platform for <u>voice</u> communication;

(f) inputting to said connected telephone station a <u>voice</u> utterance of a word corresponding to a word used to create said template;

(g) receiving at said peripheral platform a signal resulting from the inputting of said utterance;

(h) comparing said received signal with said template to establish a match;

(i) if a match is not established for said utterance terminating the connection to said connected station;

(j) if a match is established sending to said switching system from which said call was originated control signals directing further connection of said connected telephone station and transaction device reader to said transaction authentication platform;

(k) reading said transaction device with said transaction device reader;

(l) sending a data signal to said transaction authentication platform representative of the information contained in said data signal;

(m) following authentication of said transaction device sending a data signal to said transaction device reader authorizing said transaction.

26. In a telephone system comprising:

telephone stations;

spaced central office switching systems interconnected via trunk circuits for selectively providing switched telephone call communications between at least two of said telephone stations;

a service control point, separate from said central office switching systems, comprising a database storing call processing data associated with a plurality of said telephone stations for control of call processing through one or more of said central office switching systems;

a peripheral platform connected to at least one of said central office switching systems via a telephone call connection channel, said peripheral platform comprising means for providing at least one auxiliary telephone call processing capability via the telephone call connection channel and including a database of personal speech identification templates;

a signaling communication system separate from said trunk circuits for two-way communications of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a method comprising the steps of:

(a) initiating a call by dialing a number at one of said telephone stations which results in sending control signals from one of said switching systems to said service control point representing an inquiry regarding the call and including data identifying a procedure being requested;

(b) said service control point determining the procedure being requested and the entitlement of the telephone station which initiated said call to said procedure as indicated by data transmitted to said service control point;

(c) on establishing said entitlement sending control signals to said peripheral platform, said control signals identifying the source of the request on the basis of identification signals inputted at said telephone station at which said call was initiated;

(d) said peripheral platform using said control signals identifying the source of said request to access a personal speech identification template corresponding to said identity of said source of said request indicated by said identification signals;

(e) connecting said dialing telephone station to said peripheral platform for <u>voice</u> communication;

(f) inputting to said connected station a <u>voice</u> utterance of a word corresponding to a word used to create said template;

(g) receiving at said peripheral platform a signal resulting from the inputting of said utterance;

(h) comparing said received signal with said template to establish a match;

(i) if a match is not established for said utterance terminating said connection to said connected station;

(j) if a match is established sending to said switching system to which said telephone station is connected control signals directing further connection of said connected telephone station to access the requested procedure.

27. A telephone system comprising:

telephone stations;

spaced central office switching systems interconnected via trunk circuits for selectively providing switched telephone call communications between at least two of said telephone stations and including connections between said telephone stations and end central offices associated therewith;

a service control point, separate from said central office switching systems, comprising a database storing call processing data associated with a plurality of said telephone stations for control of call processing through one or more of said central office switching systems;

a peripheral platform connected to at least one of said central office switching systems via a telephone call connection channel, said peripheral platform comprising means for providing at least one auxiliary telephone call processing capability via said telephone call connection channel and including a database of personal speech identification templates;

a signaling communication system separate from said trunk circuits for two-way communications of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a transaction authentication platform;

a voice processing unit;

a transaction device reader at the site of at least one of said telephone stations and connected to the connection of said telephone station to its end office switch, said transaction device reader on reading a transaction device initiating the dialing of a virtual number associated with that transaction device reader;

said switching systems comprising program controlled switches programmed so that said dialing of said virtual number results in sending control signals from the switching system to which said end office switch is connected to said service control point, said control signal representing an inquiry regarding the dialing of said vertical number and including data identifying the transaction device read by said transaction device reader;

said service control point responsive to receiving said control signal determining the service corresponding to said virtual number and sending control signals to said peripheral platform, said signals including identification of said transaction device;

said peripheral platform responding to said control signals including identification of said transaction device by accessing the speech identification

template corresponding to the identity of said transaction device as indicated by said control signals;

said peripheral platform following accessing said template causing the initiation from said voice processing unit of a request to utter the speech corresponding to the speech represented by said template;

said peripheral platform on receiving signals representative of a responsive utterance into the telephone station at the site of said transaction device reader comparing said signals to said template to attempt to establish a match;

said peripheral platform on establishing a match originating data signals to cause said telephone station at the site of said transaction device reader and said transaction device reader to be connected to said transaction authentication platform.

28. A telephone system comprising:

telephone stations;

central office switching systems interconnected via trunk circuits for selectively providing switched telephone call communications between at least two of said telephone stations and including connections between said telephone stations and end central offices associated therewith;

a service control point, separate from said central office switching systems, comprising a database storing call processing data associated with a plurality of said telephone stations for control of call processing through one or more of said central office switching systems;

a peripheral platform connected to at least one of said central office switching systems via a telephone call connection channel, said peripheral platform comprising means for providing at least one auxiliary telephone call processing capability via the telephone call connection channel and including a database of personal speech identification templates;

a signaling communication system separate from said trunk circuits for two-way communications of data messages between said central office switching systems, between said central office switching systems and said service control point, and between said peripheral platform and said services control point;

a transaction authentication platform;

a voice processing unit;

a transaction device reader at the site of at least one of said telephone stations and connected to the connection of said telephone station to its end office switch, said transaction device reader on reading a transaction device initiating the dialing of a virtual number associated with that transaction device reader;

said switching systems comprising program controlled switches programmed so that dialing said virtual number at a predetermined one of said telephone stations results in sending control signals from said switching system to which said predetermined telephone station is connected to said service control point, said control signal representing an inquiry regarding said dialing and including data identifying the calling telephone station and the transaction device read by said transaction device reader;

said service control point responsive to receiving said control signals determining the service corresponding to said virtual number and identity of said predetermined

telephone station and sending control signals to said peripheral platform, said signals including identification of said transaction device;

said peripheral platform responding to said control signals to identify said transaction device to access the speech identification template corresponding to said transaction device identified by said control signals;

said peripheral platform following accessing said template causing the initiation from said <u>voice</u> processing unit of a request to utter the speech corresponding to the speech represented by said template;

said peripheral platform on receiving signals representative of the responsive utterance comparing said signals to said template to attempt to establish a match;

said peripheral platform on establishing a match originating data signals to cause said predetermined telephone station and transaction device reader to be connected to said transaction authentication platform.